DOCKET NO.

FIG. 1

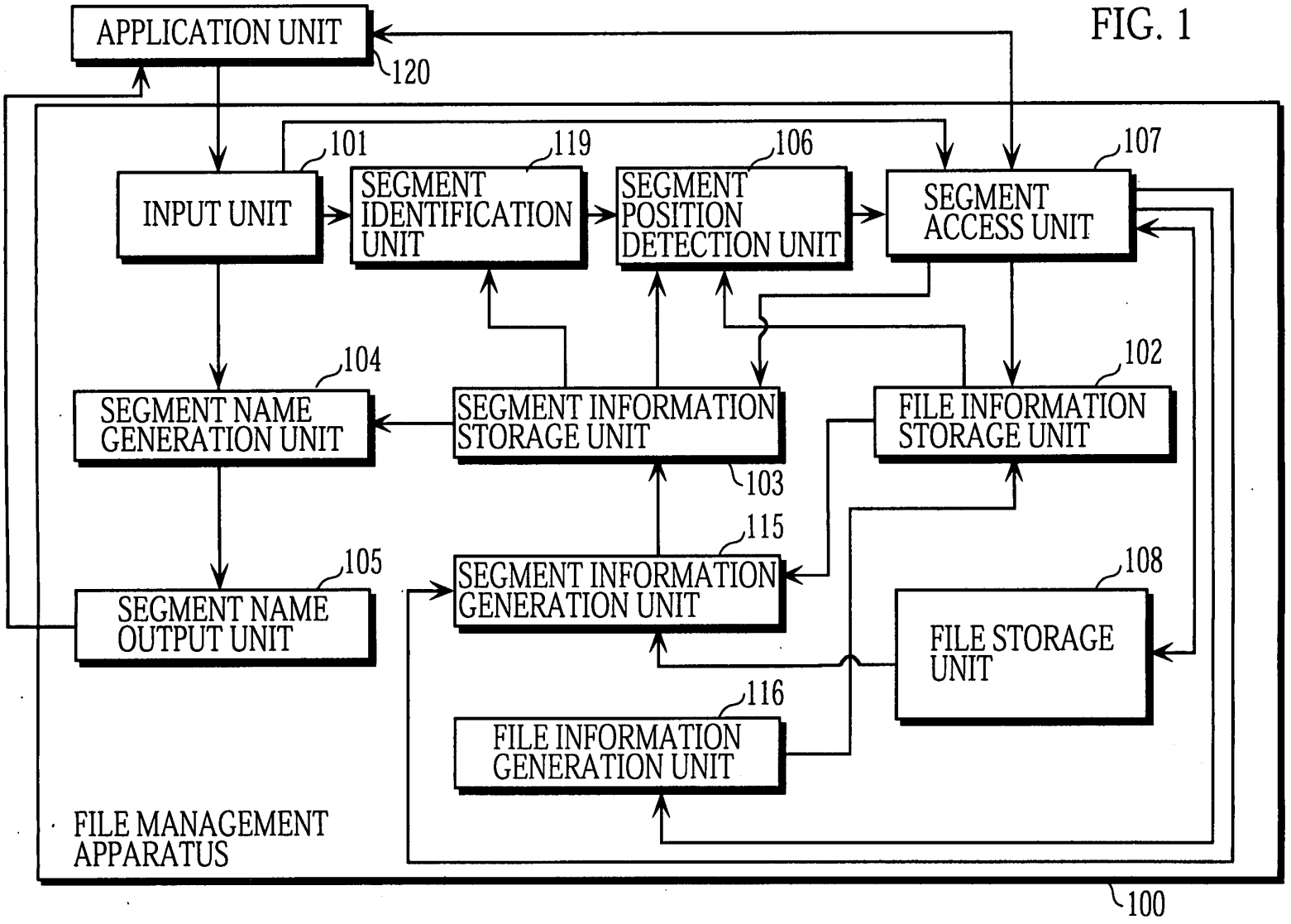


FIG. 2

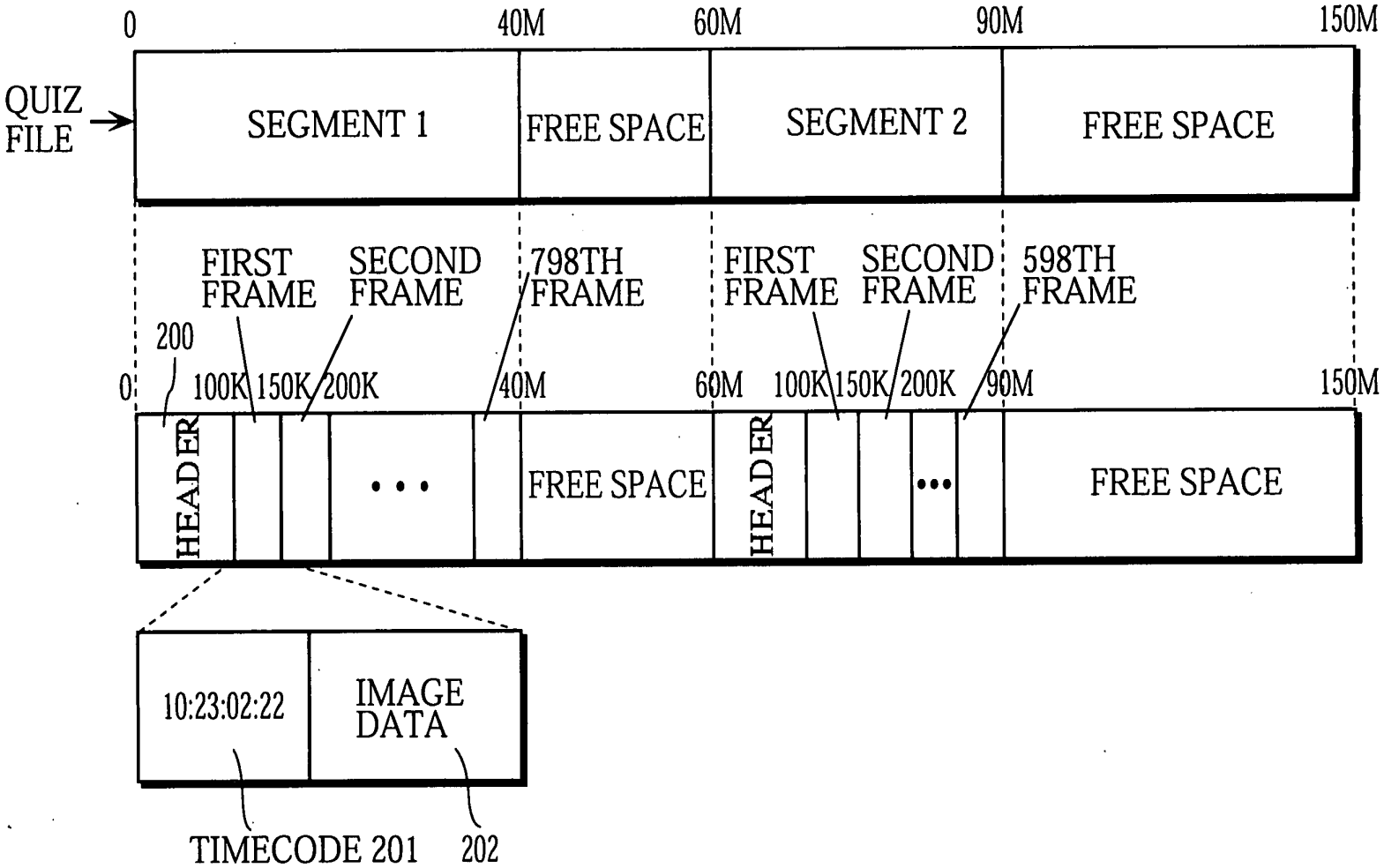

0
40M
60M
90M
150M
QUIZ FILE
SEGMENT 1
FREE SPACE
SEGMENT 2
FREE SPACE
FIRST FRAME
SECOND FRAME
798TH FRAME
FIRST FRAME
SECOND FRAME
598TH FRAME
200
0
100K
150K
200K
40M
60M
100K
150K
200K
90M
150M
HEADER
FREE SPACE
HEADER
FREE SPACE
10:23:02:22
IMAGE DATA
TIMECODE 201
202

FIG. 3A

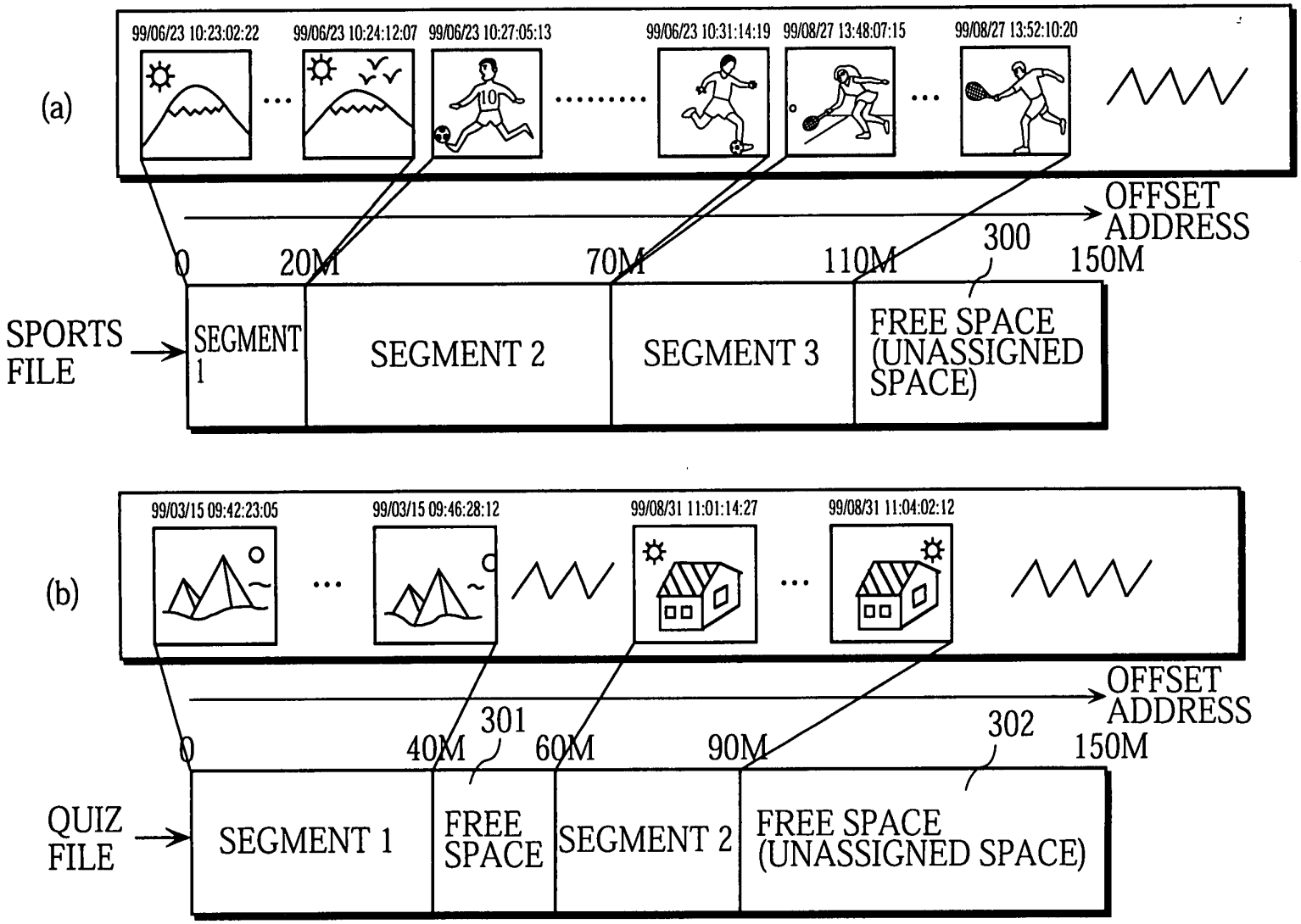

(a)
99/06/23 10:23:02:22
99/06/23 10:24:12:07
99/06/23 10:27:05:13
99/06/23 10:31:14:19
99/08/27 13:48:07:15
99/08/27 13:52:10:20
OFFSET ADDRESS
0
20M
70M
110M
300
150M
SPORTS FILE
SEGMENT 1
SEGMENT 2
SEGMENT 3
FREE SPACE (UNASSIGNED SPACE)
(b)
99/03/15 09:42:23:05
99/03/15 09:46:28:12
99/08/31 11:01:14:27
99/08/31 11:04:02:12
OFFSET ADDRESS
0
40M
301
60M
90M
302
150M
QUIZ FILE
SEGMENT 1
FREE SPACE
SEGMENT 2
FREE SPACE (UNASSIGNED SPACE)

FIG. 4

FILE NAME	STORAGE POSITION	CREATION DATE
Sports	004	99/08/27 13:52:10
Quiz	126	99/08/31 11:04:02

FIG. 5

SPORTS FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1	0	20M
SEGMENT 2	20M	50M
SEGMENT 3	70M	40M
UNASSIGNED SPACE	110M	40M
QUIZ FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1	0	40M
SEGMENT 2	60M	30M
UNASSIGNED SPACE	40M	20M
UNASSIGNED SPACE	90M	60M

FIG.
CLASS SUBCLASS

FIG. 6

SEGMENT NAME = FILE NAME OF A FILE TO WHICH A SEGMENT BELONGS + SERIAL NUMBER OF SEGMENT IN THE FILE ASSIGNED IN ORDER OF STORAGE IN THE FILE

FIG. 7

FILE	SEGMENT	SEGMENT NAME
Sports	SEGMENT 1	Sports 1
	SEGMENT 2	Sports 2
	SEGMENT 3	Sports 3
Quiz	SEGMENT 1	Quiz 1
	SEGMENT 2	Quiz 2

FIG. 8

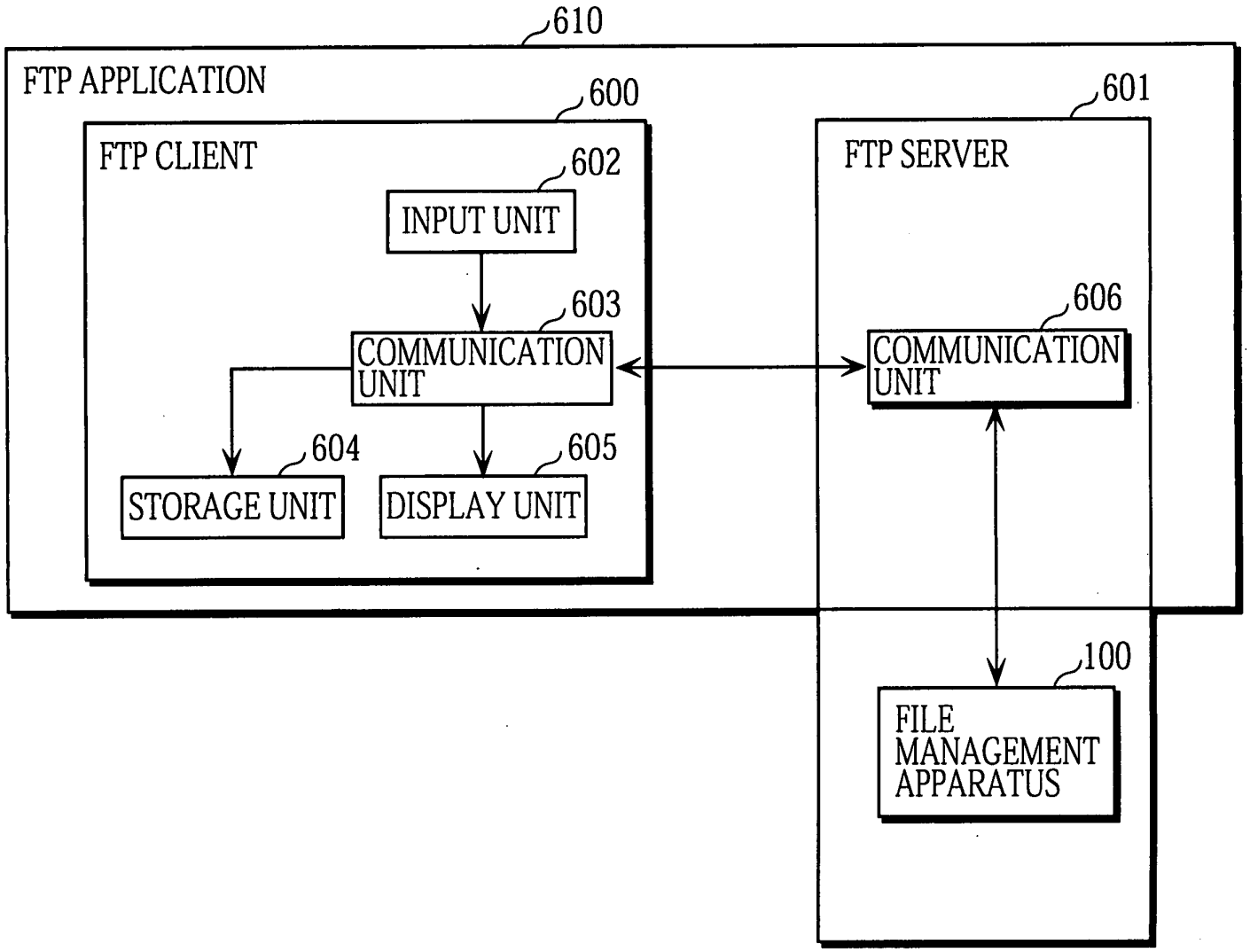

610
FTP APPLICATION
600
FTP CLIENT
602
INPUT UNIT
603
COMMUNICATION UNIT
604
STORAGE UNIT
605
DISPLAY UNIT
601
FTP SERVER
606
COMMUNICATION UNIT
100
FILE MANAGEMENT APPARATUS

FIG. 9

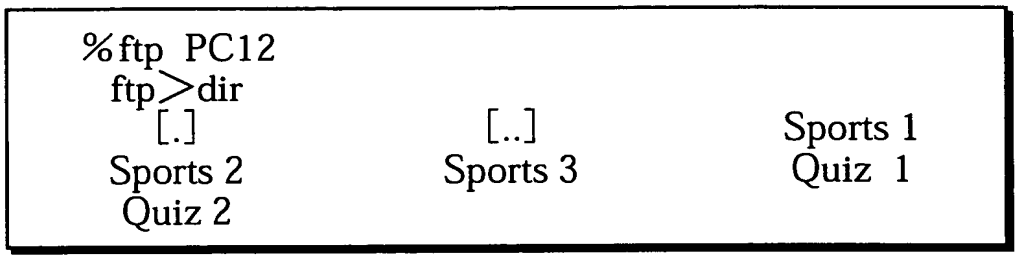

%ftp PC12
ftp>dir
[.]
[..]
Sports 1
Sports 2
Sports 3
Quiz 1
Quiz 2

FIG. 10

ftp>get Sports 2
File Transfer Succeed

FIG. 11

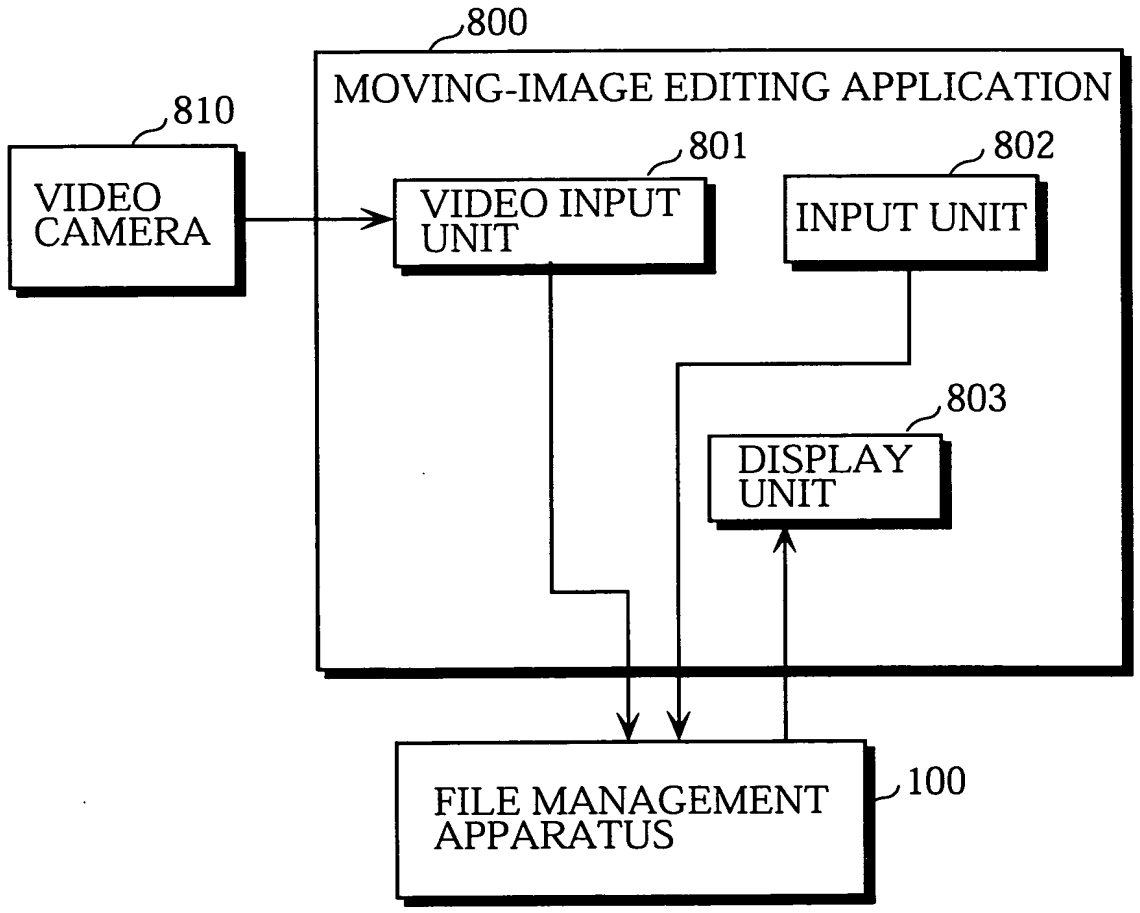

800
MOVING-IMAGE EDITING APPLICATION
810
VIDEO CAMERA
801
VIDEO INPUT UNIT
802
INPUT UNIT
803
DISPLAY UNIT
FILE MANAGEMENT APPARATUS
100

FIG. 12

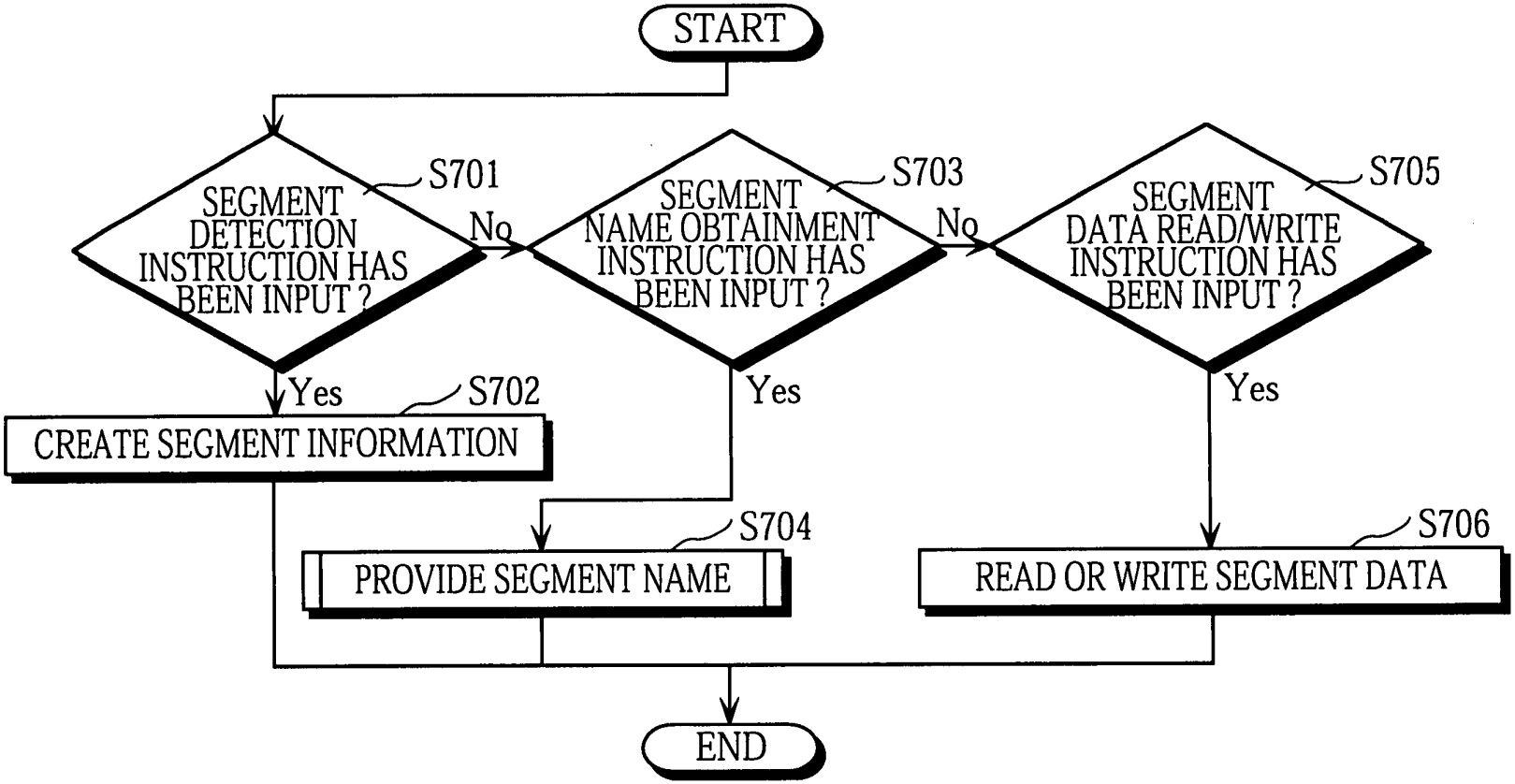

START
SEGMENT DETECTION INSTRUCTION HAS BEEN INPUT ?
S701
No
SEGMENT NAME OBTAINMENT INSTRUCTION HAS BEEN INPUT ?
S703
No
SEGMENT DATA READ/WRITE INSTRUCTION HAS BEEN INPUT ?
S705
Yes
S702
CREATE SEGMENT INFORMATION
Yes
Yes
S704
PROVIDE SEGMENT NAME
S706
READ OR WRITE SEGMENT DATA
END

FIG. 13

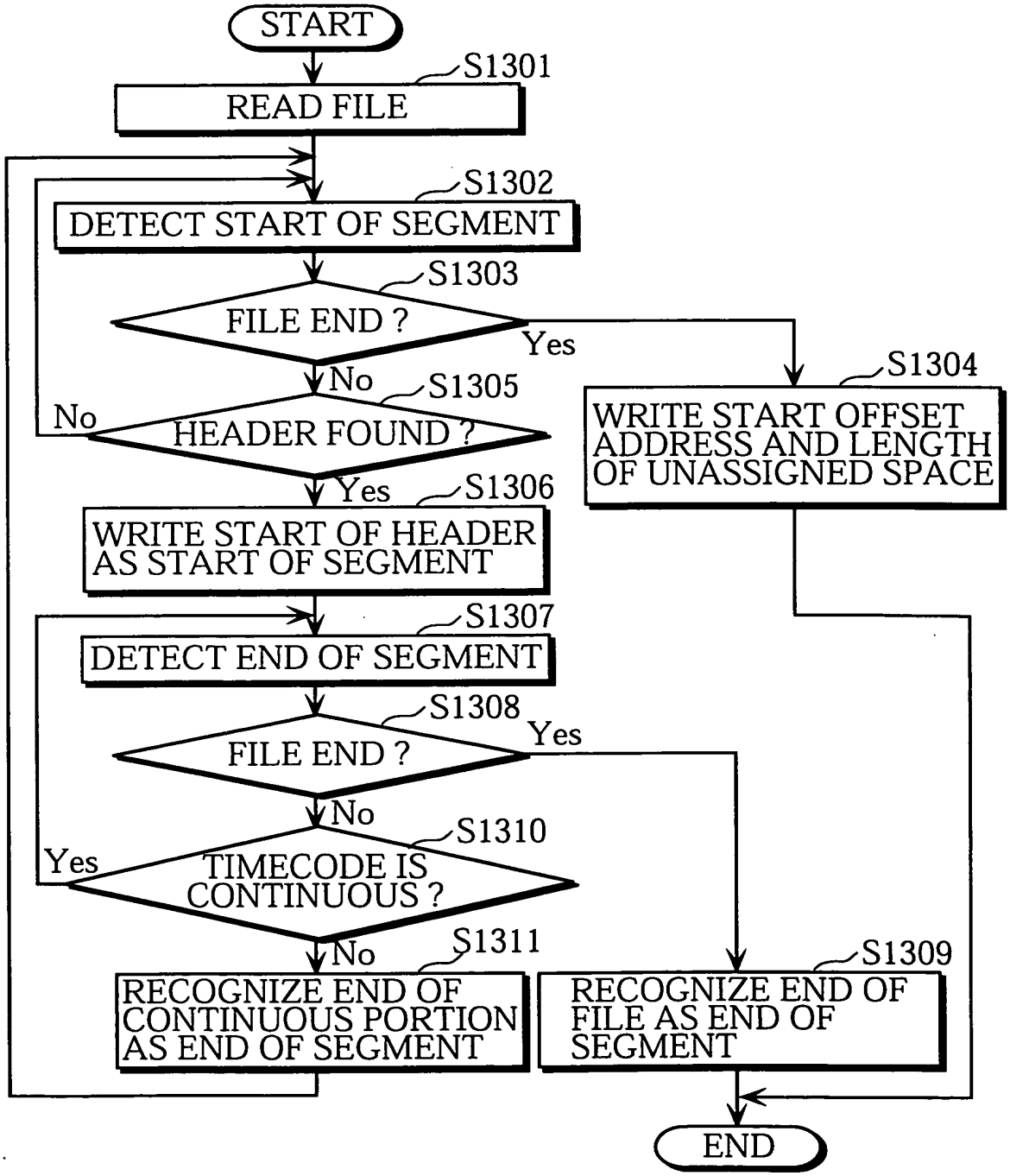

START
S1301
READ FILE
S1302
DETECT START OF SEGMENT
S1303
FILE END ?
Yes
No
S1304
WRITE START OFFSET ADDRESS AND LENGTH OF UNASSIGNED SPACE
S1305
No
HEADER FOUND ?
Yes
S1306
WRITE START OF HEADER AS START OF SEGMENT
S1307
DETECT END OF SEGMENT
S1308
FILE END ?
Yes
No
S1310
Yes
TIMECODE IS CONTINUOUS ?
No
S1311
RECOGNIZE END OF CONTINUOUS PORTION AS END OF SEGMENT
S1309
RECOGNIZE END OF FILE AS END OF SEGMENT
END

FIG. 14

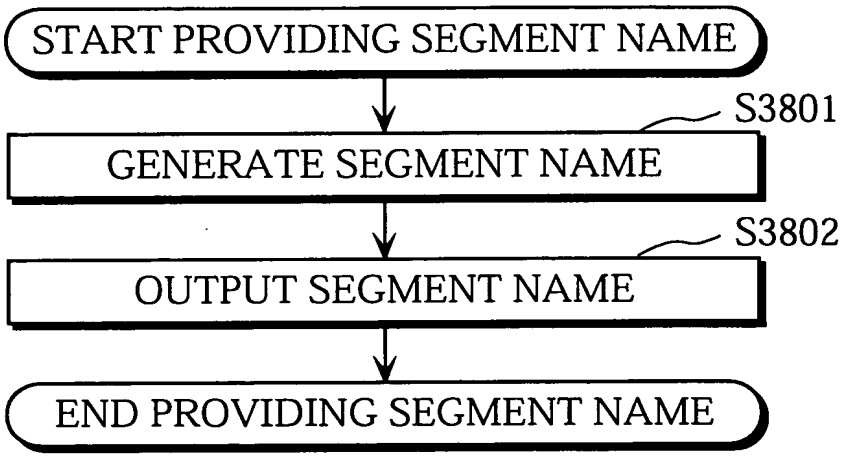

START PROVIDING SEGMENT NAME
S3801
GENERATE SEGMENT NAME
S3802
OUTPUT SEGMENT NAME
END PROVIDING SEGMENT NAME

FIG. 15

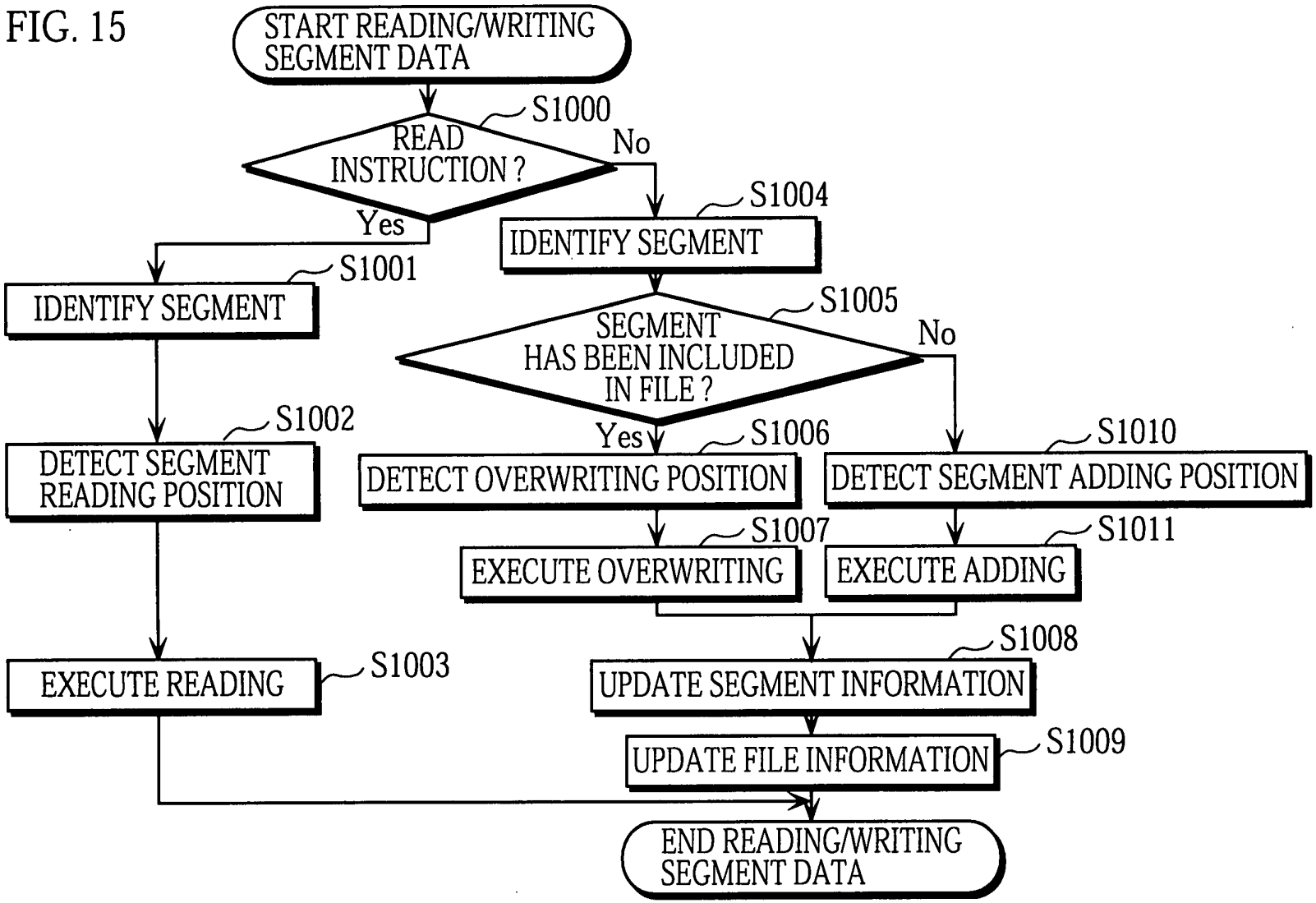

START READING/WRITING SEGMENT DATA
S1000
READ INSTRUCTION ?
No
Yes
S1004
IDENTIFY SEGMENT
S1001
IDENTIFY SEGMENT
S1005
SEGMENT HAS BEEN INCLUDED IN FILE ?
No
Yes
S1002
DETECT SEGMENT READING POSITION
S1006
DETECT OVERWRITING POSITION
S1010
DETECT SEGMENT ADDING POSITION
S1007
EXECUTE OVERWRITING
S1011
EXECUTE ADDING
S1008
UPDATE SEGMENT INFORMATION
S1003
EXECUTE READING
S1009
UPDATE FILE INFORMATION
END READING/WRITING SEGMENT DATA

FIG. 16

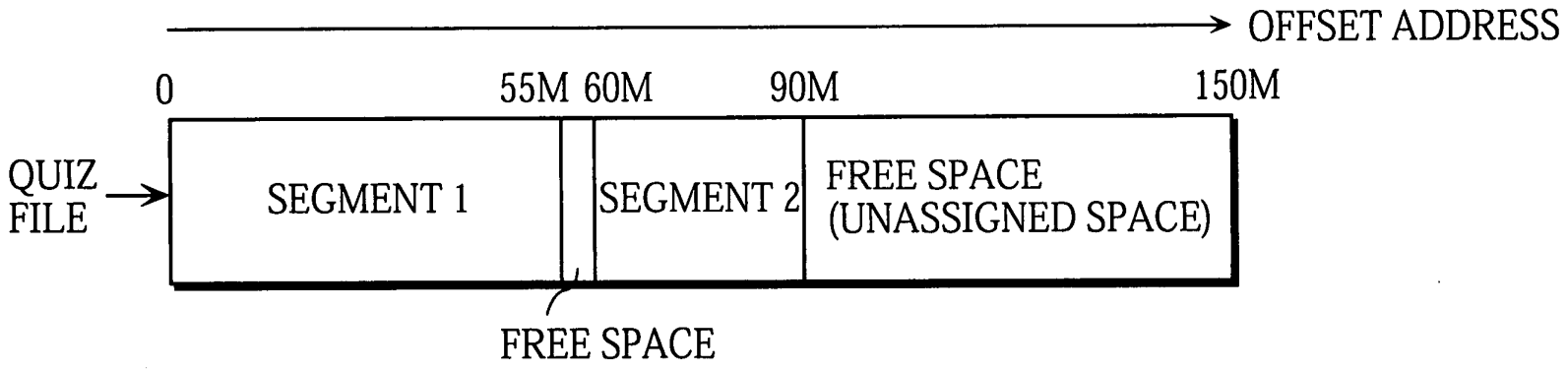

OFFSET ADDRESS
0
55M
60M
90M
150M
QUIZ FILE
SEGMENT 1
SEGMENT 2
FREE SPACE (UNASSIGNED SPACE)
FREE SPACE

FIG. 17

QUIZ FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1	0	55M
SEGMENT 2	60M	30M
UNASSIGNED SPACE	90M	60M

FIG. 18

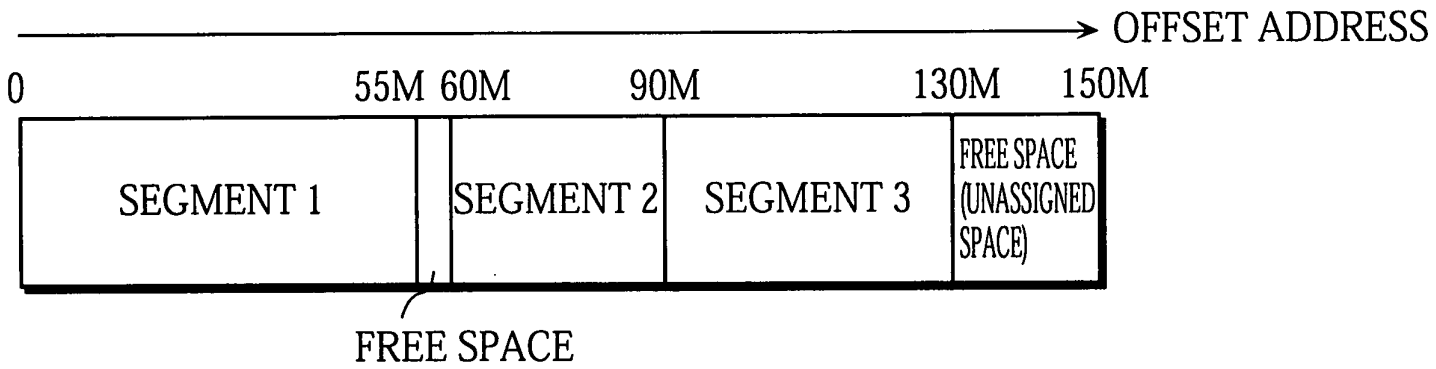

OFFSET ADDRESS
0
55M
60M
90M
130M
150M
SEGMENT 1
SEGMENT 2
SEGMENT 3
FREE SPACE (UNASSIGNED SPACE)
FREE SPACE

FIG. 19

SPORTS FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1	0	55M
SEGMENT 2	60M	30M
SEGMENT 3	90M	40M
UNASSIGNED SPACE	130M	20M

FIG. 20

SPORTS FILE				
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)	START TIME	END TIME
SEGMENT 1	0	20M	99/06/23 10:23:02:22	99/06/23 10:24:12:07
SEGMENT 2	20M	50M	99/06/23 10:27:05:13	99/06/23 10:31:14:19
SEGMENT 3	70M	40M	99/08/27 13:48:07:15	99/08/27 13:52:10:20
UNASSIGNED SPACE	110M	40M		
QUIZ FILE				
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)	START TIME	END TIME
SEGMENT 1	0	40M	99/03/15 09:42:23:05	99/03/15 09:46:28:12
SEGMENT 2	60M	30M	99/08/31 11:01:14:27	99/08/31 11:04:02:12
UNASSIGNED SPACE	40M	20M		
UNASSIGNED SPACE	90M	60M		

FIG. 21

%ftp> ℓs−2ℓ

	LENGTH	START TIME			END TIME	
Sports	150MB	99/06/23	10:23:02:22	→	99/08/27	13:52:10:20
Sports 1	20MB	99/06/23	10:23:02:22	→	99/06/23	10:24:12:07
Sports 2	50MB	99/06/23	10:27:05:13	→	99/06/23	10:31:14:19
Sports 3	40MB	99/08/27	13:48:07:15	→	99/08/27	13:52:10:20
Quiz	150MB	99/03/15	09:42:23:05	→	99/08/31	11:04:02:12
Quiz 1	40MB	99/03/15	09:42:23:05	→	99/03/15	09:46:28:12
Quiz 2	30MB	99/08/31	11:01:14:27	→	99/08/31	11:04:02:12

FIG. 22

SEGMENT NAME = FILE NAME OF A FILE TO WHICH A SEGMENT BELONGS + ALPHABET INDICATING A SERIAL STORAGE-ORDER NUMBER OF SEGMENT IN FILE

FIG. 23

SPORTS FILE		
SEGMENT NAME	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
baseball	0	20M
tennis	20M	50M
ski	70M	40M
UNASSIGNED SPACE	110M	40M
QUIZ FILE		
SEGMENT NAME	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
Introquiz	0	60M
Jesturequiz	60M	30M
UNASSIGNED SPACE	90M	60M

FIG. 24A

SPORTS FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1 SEGMENT 2 SEGMENT 3	0 20M 70M	20M 50M 40M
UNASSIGNED SPACE	110M	40M
QUIZ FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1 SEGMENT 2	0 60M	60M 30M
UNASSIGNED SPACE	90M	60M

FIG. 24B

SEGMENT NAME	FILE NAME	STORAGE ORDER
baseball	Sports	1
tennis	Sports	2
ski	Sports	3
Introquiz	Quiz	1
Jesturequiz	Quiz	2

US 6,687,714 B2

FIG. 25

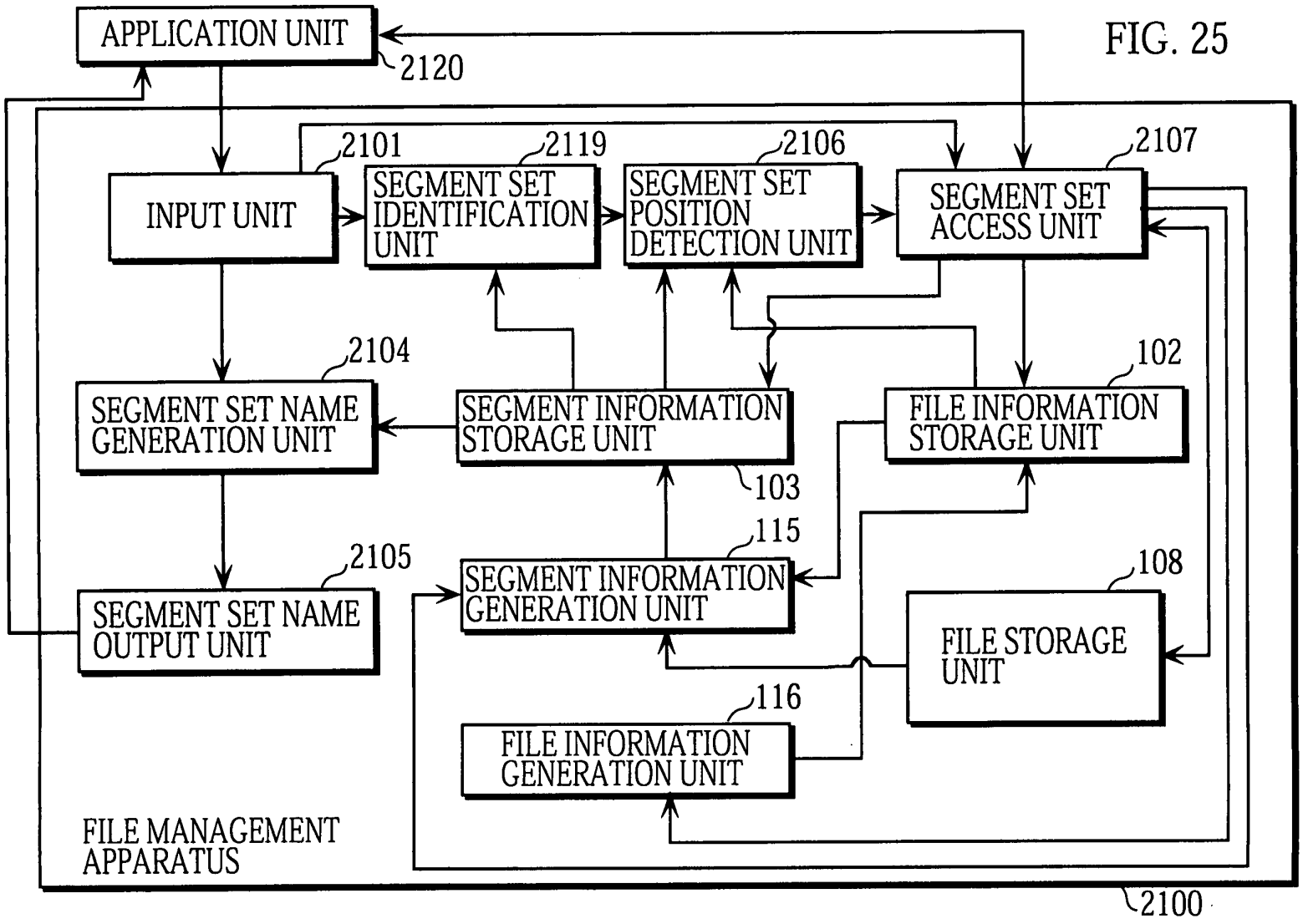


FIG. 26A

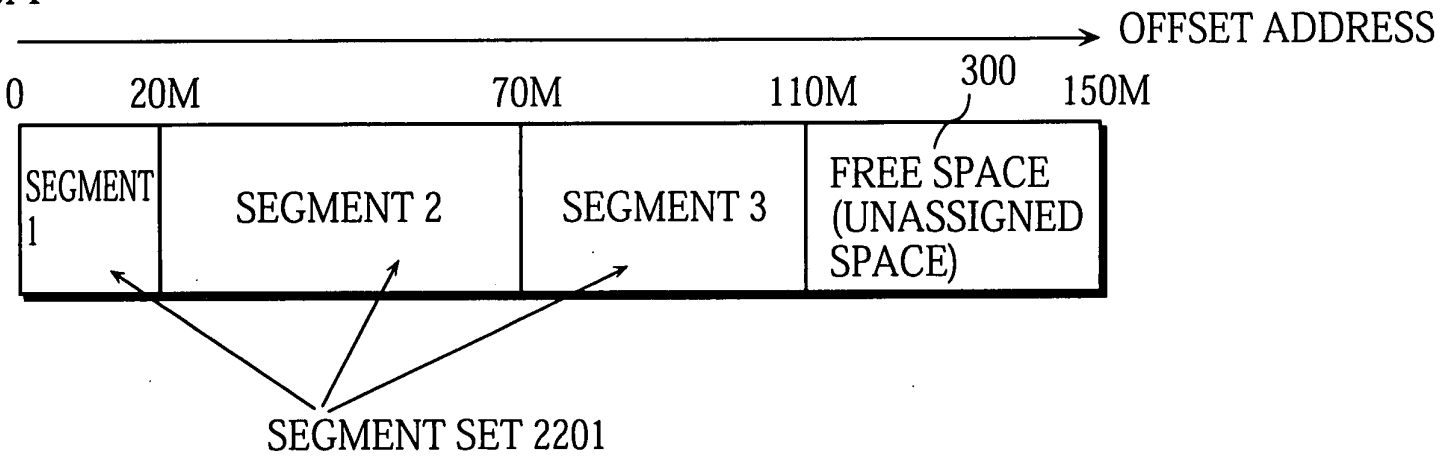


FIG. 26B

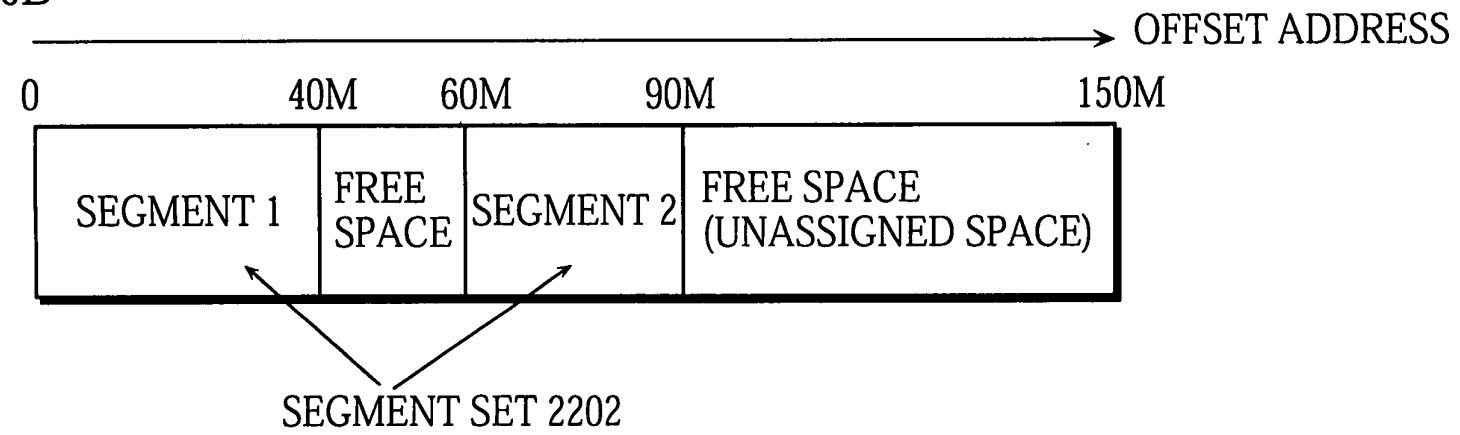


FIG. 27

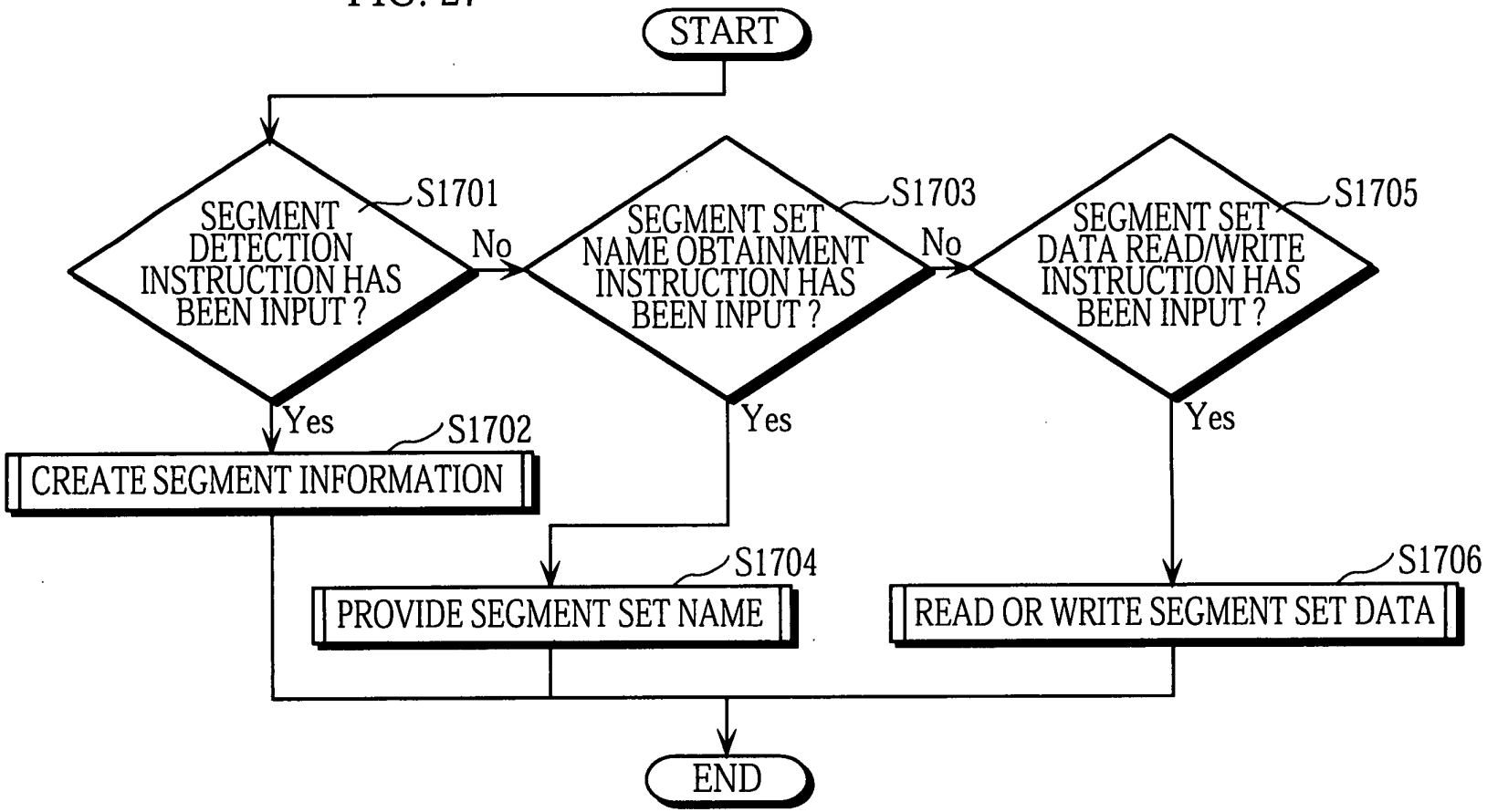

START
SEGMENT DETECTION INSTRUCTION HAS BEEN INPUT ?
S1701
No
SEGMENT SET NAME OBTAINMENT INSTRUCTION HAS BEEN INPUT ?
S1703
No
SEGMENT SET DATA READ/WRITE INSTRUCTION HAS BEEN INPUT ?
S1705
Yes
S1702
CREATE SEGMENT INFORMATION
Yes
Yes
S1704
PROVIDE SEGMENT SET NAME
S1706
READ OR WRITE SEGMENT SET DATA
END

FIG. 28

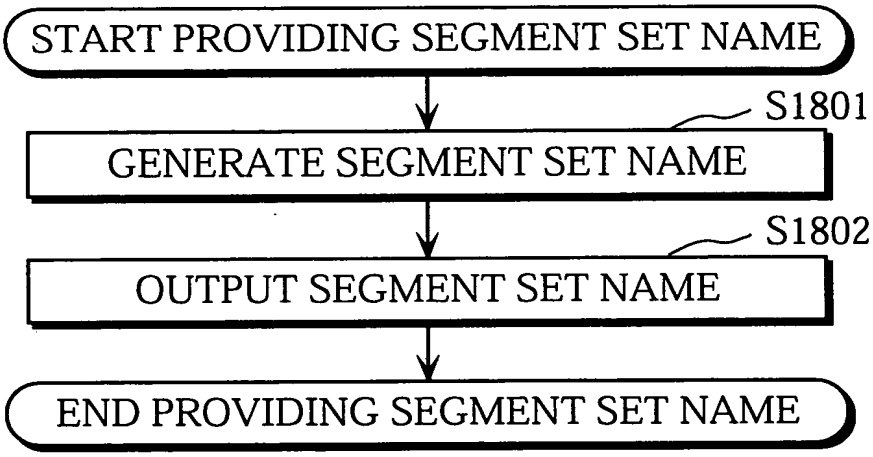

START PROVIDING SEGMENT SET NAME
S1801
GENERATE SEGMENT SET NAME
S1802
OUTPUT SEGMENT SET NAME
END PROVIDING SEGMENT SET NAME

FIG. 29

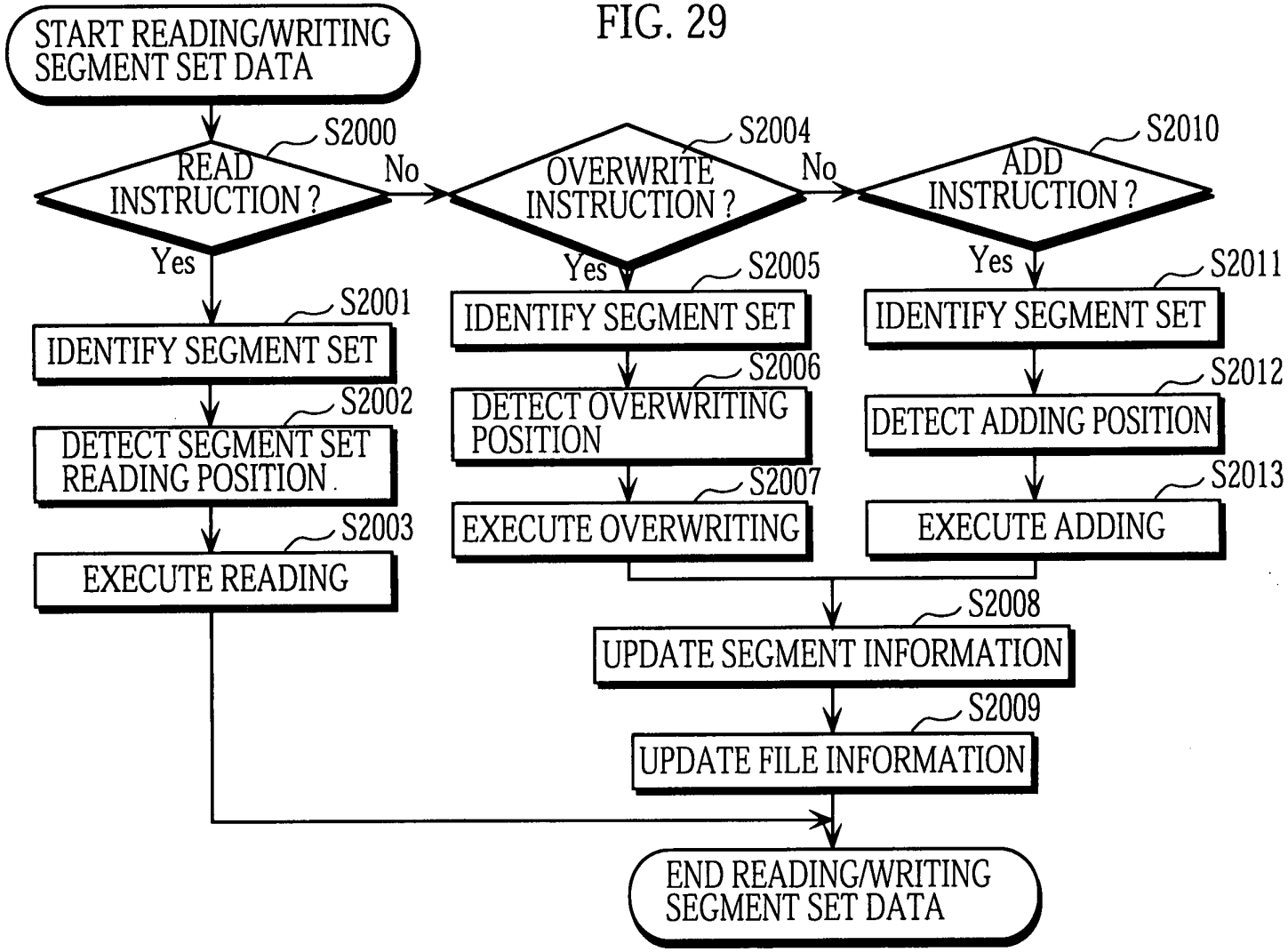

START READING/WRITING SEGMENT SET DATA
S2000
READ INSTRUCTION ?
No
S2004
OVERWRITE INSTRUCTION ?
No
S2010
ADD INSTRUCTION ?
Yes
S2001
IDENTIFY SEGMENT SET
S2002
DETECT SEGMENT SET READING POSITION
S2003
EXECUTE READING
Yes
S2005
IDENTIFY SEGMENT SET
S2006
DETECT OVERWRITING POSITION
S2007
EXECUTE OVERWRITING
Yes
S2011
IDENTIFY SEGMENT SET
S2012
DETECT ADDING POSITION
S2013
EXECUTE ADDING
S2008
UPDATE SEGMENT INFORMATION
S2009
UPDATE FILE INFORMATION
END READING/WRITING SEGMENT SET DATA

FIG. 30A

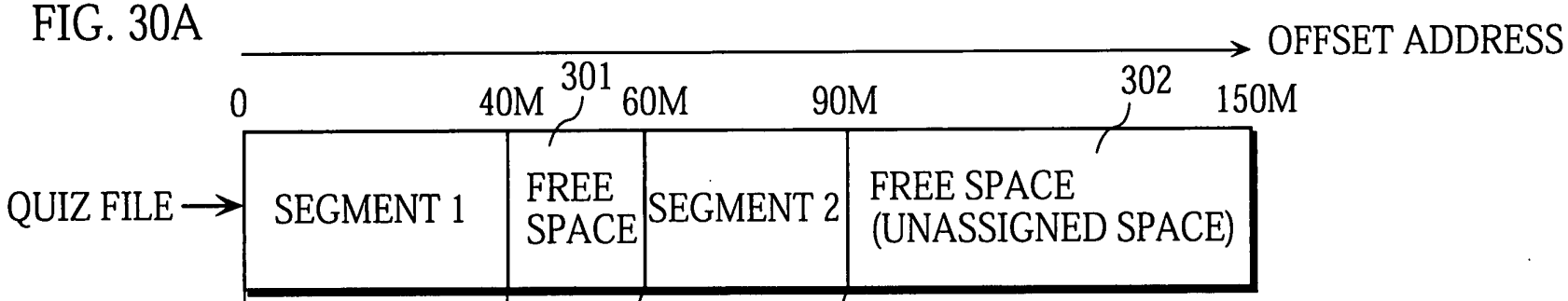


FIG. 30B

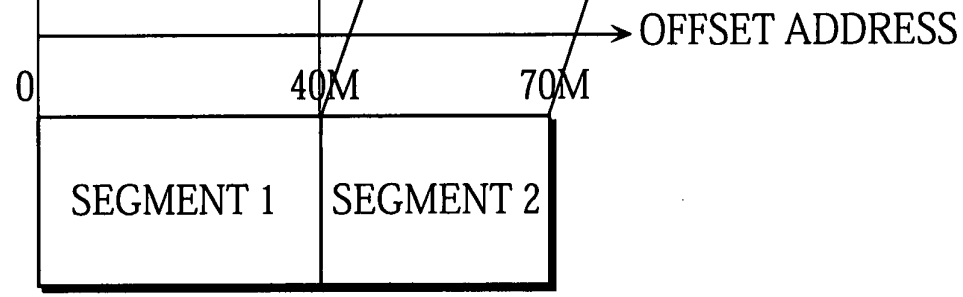


FIG. 31

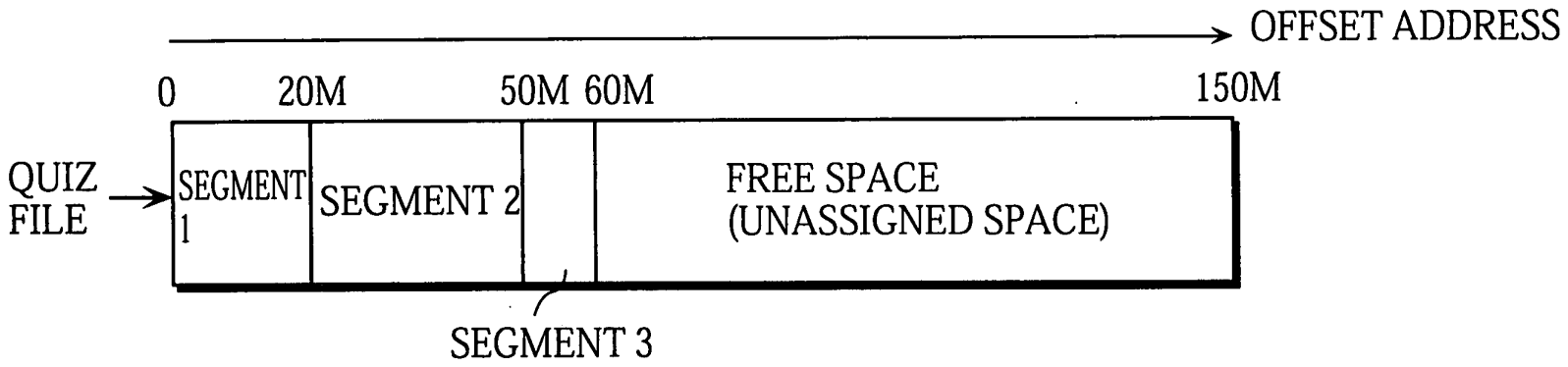

OFFSET ADDRESS
0
20M
50M
60M
150M
QUIZ FILE
SEGMENT 1
SEGMENT 2
FREE SPACE
(UNASSIGNED SPACE)
SEGMENT 3

FIG. 32

QUIZ FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1	0	20M
SEGMENT 2	20M	30M
SEGMENT 3	50M	10M
UNASSIGNED SPACE	60M	90M

FIG. 33

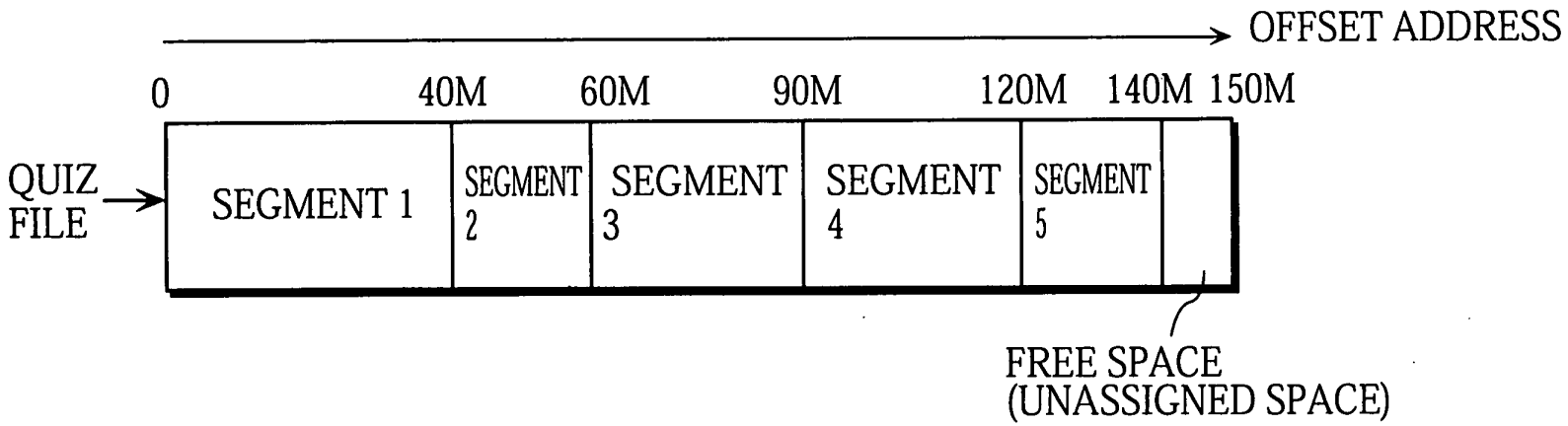

OFFSET ADDRESS
0
40M
60M
90M
120M
140M
150M
QUIZ FILE
SEGMENT 1
SEGMENT 2
SEGMENT 3
SEGMENT 4
SEGMENT 5
FREE SPACE
(UNASSIGNED SPACE)

FIG. 34

QUIZ FILE		
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)
SEGMENT 1	0	40M
SEGMENT 2	40M	20M
SEGMENT 3	60M	30M
SEGMENT 4	90M	30M
SEGMENT 5	120M	20M
UNASSIGNED SPACE	140M	10M

FIG. 35

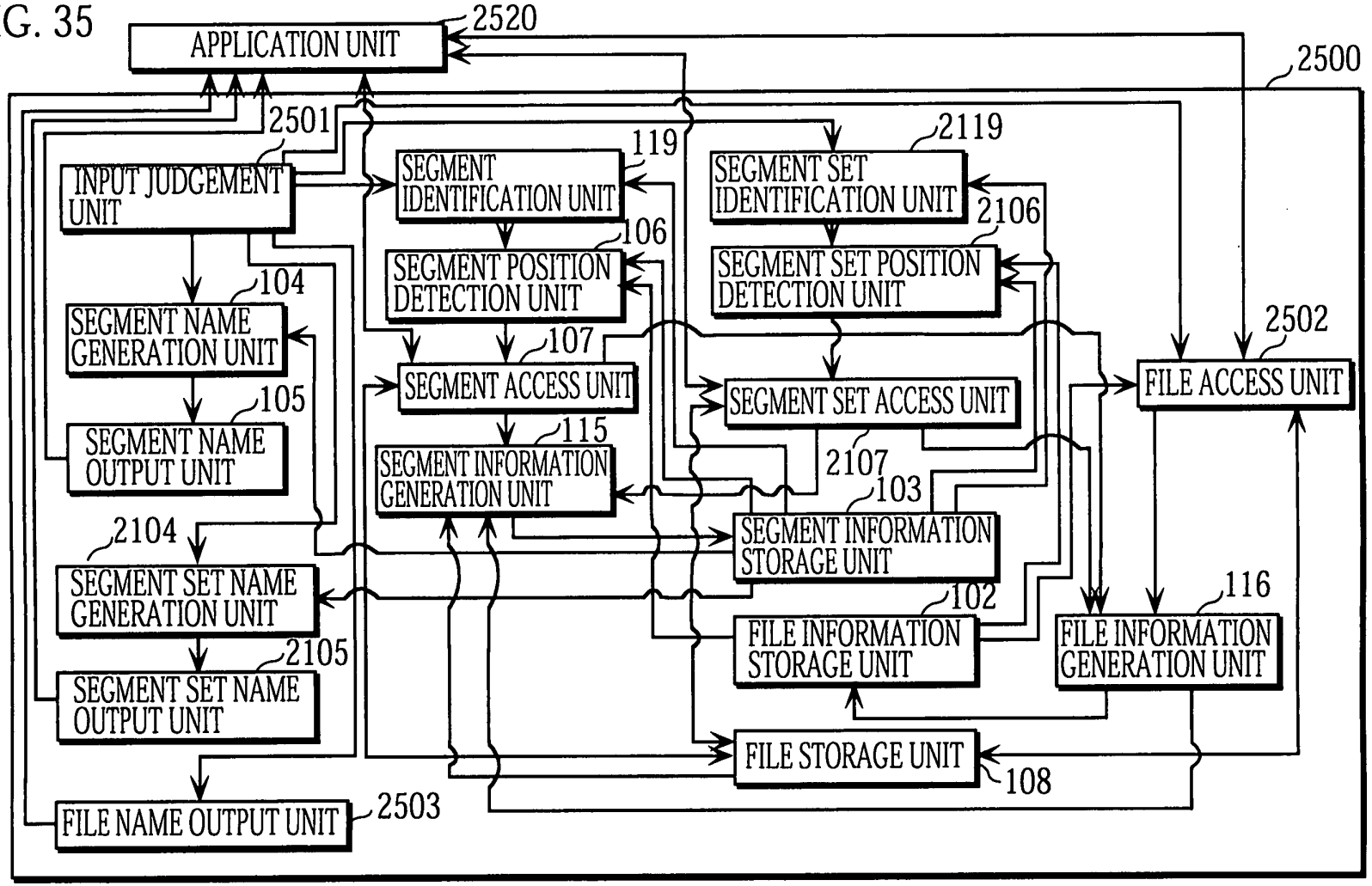

APPLICATION UNIT
2520
2500
2501
INPUT JUDGEMENT UNIT
SEGMENT IDENTIFICATION UNIT
119
SEGMENT SET IDENTIFICATION UNIT
2119
SEGMENT POSITION DETECTION UNIT
106
SEGMENT SET POSITION DETECTION UNIT
2106
104
SEGMENT NAME GENERATION UNIT
2502
FILE ACCESS UNIT
107
SEGMENT ACCESS UNIT
SEGMENT SET ACCESS UNIT
105
SEGMENT NAME OUTPUT UNIT
115
SEGMENT INFORMATION GENERATION UNIT
2107
103
SEGMENT INFORMATION STORAGE UNIT
2104
SEGMENT SET NAME GENERATION UNIT
102
116
FILE INFORMATION STORAGE UNIT
FILE INFORMATION GENERATION UNIT
2105
SEGMENT SET NAME OUTPUT UNIT
FILE STORAGE UNIT
108
FILE NAME OUTPUT UNIT
2503

FIG. 36

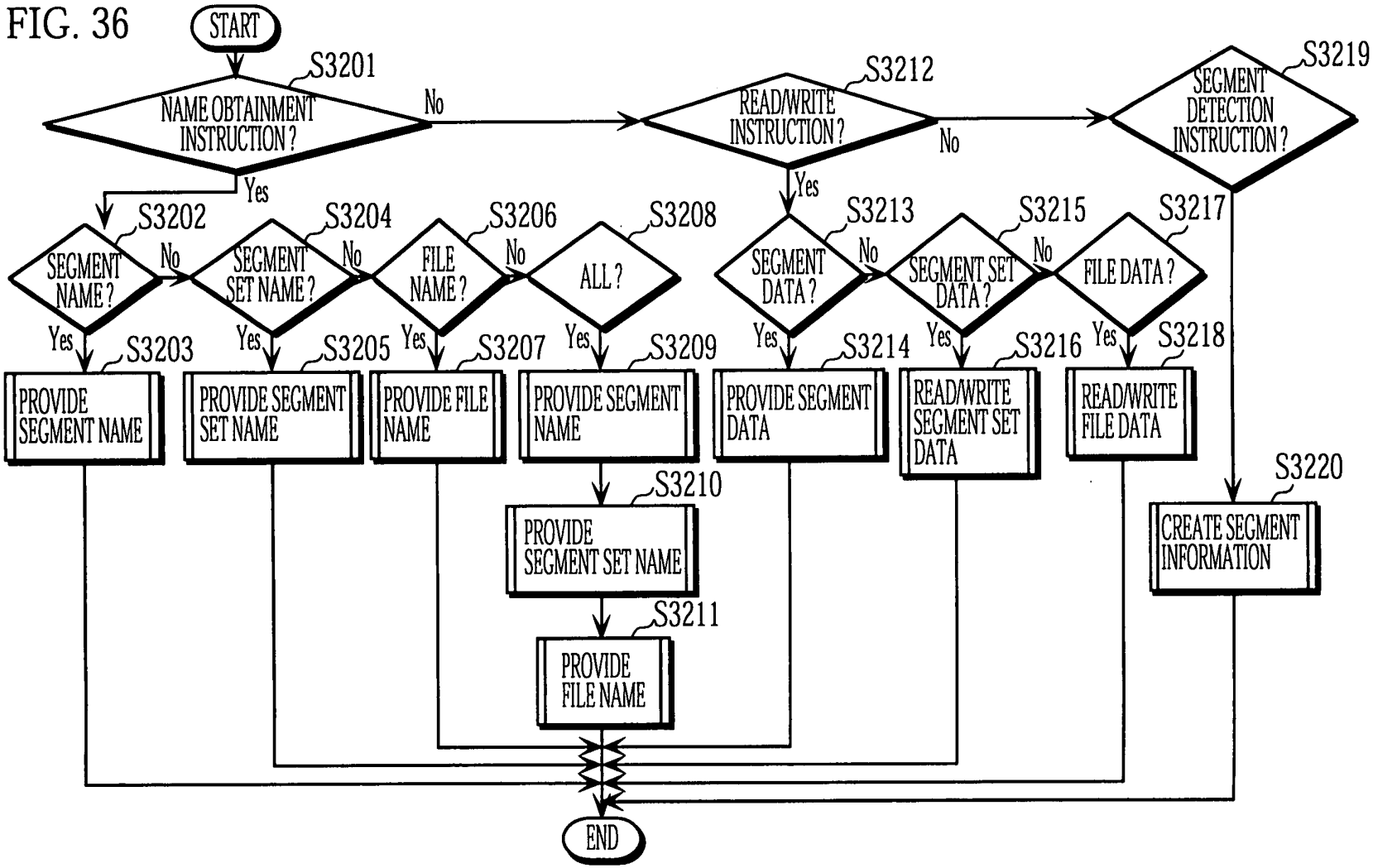

START
S3201
NAME OBTAINMENT INSTRUCTION?
No
Yes
S3212
READ/WRITE INSTRUCTION?
No
Yes
S3219
SEGMENT DETECTION INSTRUCTION?
S3202
SEGMENT NAME?
No
Yes
S3204
SEGMENT SET NAME?
No
Yes
S3206
FILE NAME?
No
Yes
S3208
ALL?
Yes
S3213
SEGMENT DATA?
No
Yes
S3215
SEGMENT SET DATA?
No
Yes
S3217
FILE DATA?
Yes
S3203
PROVIDE SEGMENT NAME
S3205
PROVIDE SEGMENT SET NAME
S3207
PROVIDE FILE NAME
S3209
PROVIDE SEGMENT NAME
S3214
PROVIDE SEGMENT DATA
S3216
READ/WRITE SEGMENT SET DATA
S3218
READ/WRITE FILE DATA
S3210
PROVIDE SEGMENT SET NAME
S3211
PROVIDE FILE NAME
S3220
CREATE SEGMENT INFORMATION
END

FIG. 37

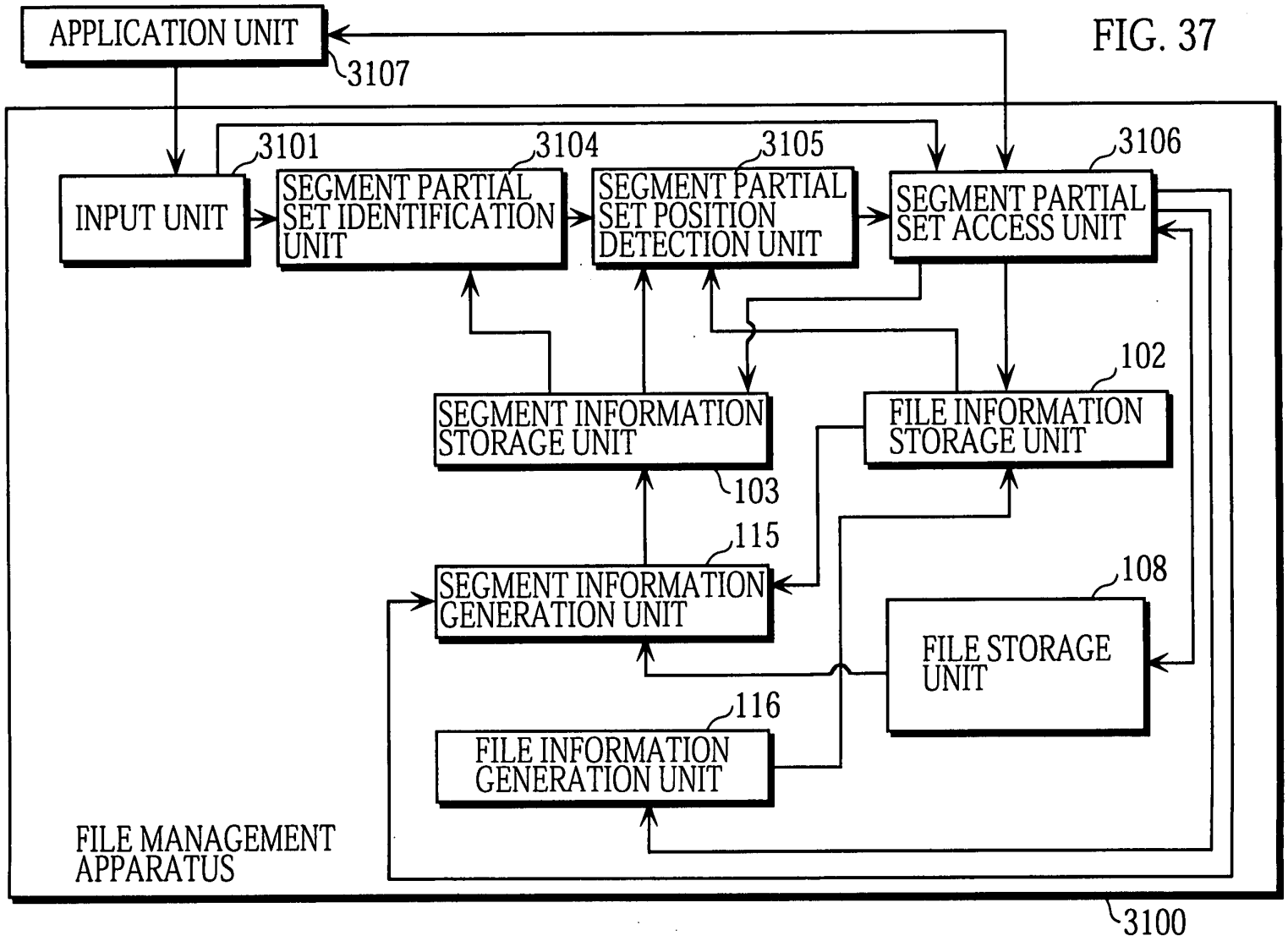

APPLICATION UNIT
3107
3101
3104
3105
3106
INPUT UNIT
SEGMENT PARTIAL SET IDENTIFICATION UNIT
SEGMENT PARTIAL SET POSITION DETECTION UNIT
SEGMENT PARTIAL SET ACCESS UNIT
102
SEGMENT INFORMATION STORAGE UNIT
FILE INFORMATION STORAGE UNIT
103
115
SEGMENT INFORMATION GENERATION UNIT
108
FILE STORAGE UNIT
116
FILE INFORMATION GENERATION UNIT
FILE MANAGEMENT APPARATUS
3100

FIG. 38A

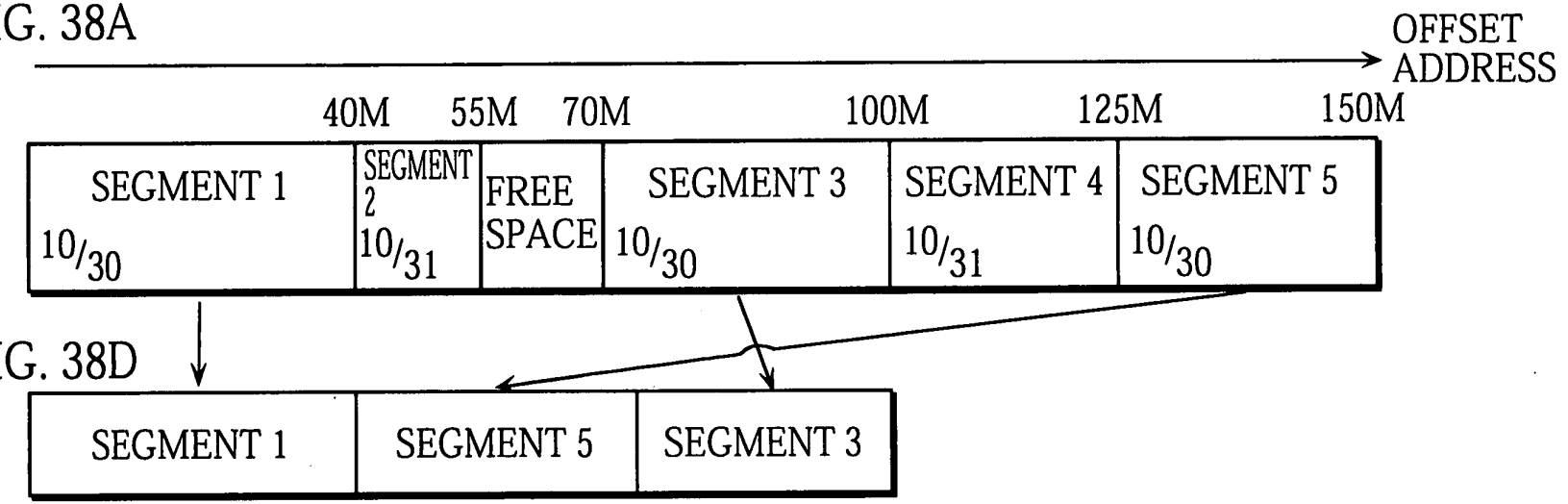


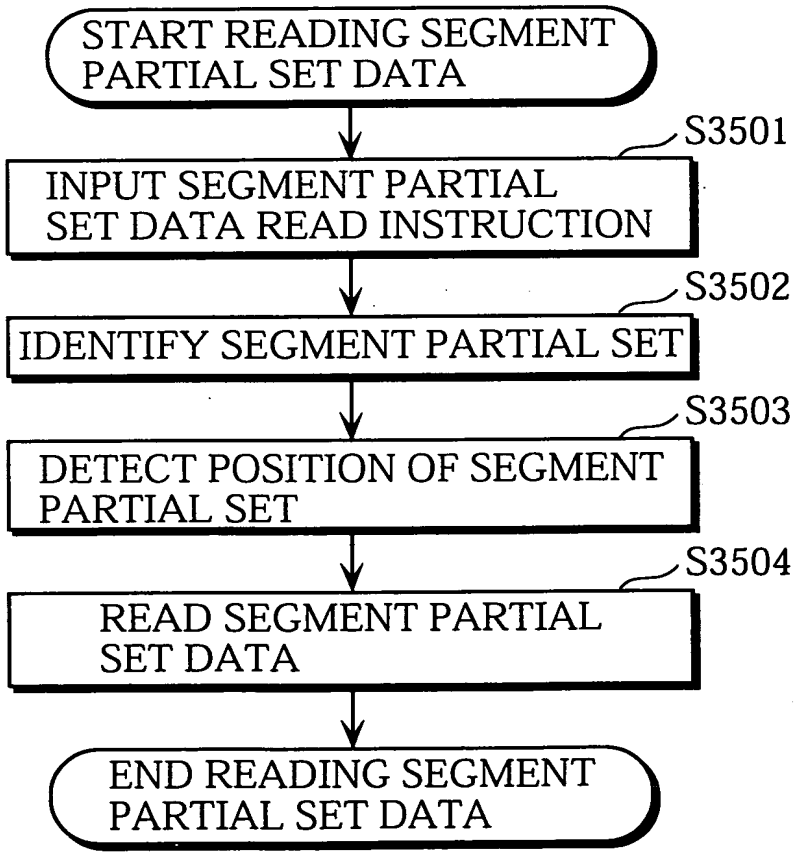
FIG. 38D

FIG. 38B

SPORTS FILE				
SEGMENT	START OFFSET ADDRESS (BYTE)	SEGMENT LENGTH (BYTE)	START TIME	END TIME
SEGMENT 1	0	40M	99/10/30 10:42:03:27	99/10/30 10:48:06:15
SEGMENT 2	40M	15M	99/10/31 12:21:03:08	99/10/31 12:23:15:15
SEGMENT 3	70M	30M	99/10/30 18:44:26:04	99/10/30 18:48:32:02
SEGMENT 4	100M	25M	99/10/31 18:42:21:14	99/10/31 18:47:24:15
SEGMENT 5	125M	25M	99/10/30 12:21:06:18	99/10/30 12:24:07:15
UNASSIGNED SPACE	55M	15M		

FIG. 38C >Get Sports −F 1999/10/30 −sort

FIG. 39


START READING SEGMENT PARTIAL SET DATA
S3501
INPUT SEGMENT PARTIAL SET DATA READ INSTRUCTION
S3502
IDENTIFY SEGMENT PARTIAL SET
S3503
DETECT POSITION OF SEGMENT PARTIAL SET
S3504
READ SEGMENT PARTIAL SET DATA
END READING SEGMENT PARTIAL SET DATA